REMARKS

Claims 3-10 are pending in this application. By this Amendment, claims 3-9 are amended, and claim 10 is added. Reconsideration of the application is respectfully requested.

Applicant gratefully appreciates the courtesies to Applicant's representative during a July 12, 2004 telephonic interview. During the telephonic interview, the Examiner indicated that claim 10 added in the November 17, 2003 second Amendment After Final Rejection was never entered onto the record. Thus, the Examiner recommended adding new claim 10 through this Amendment.

The Office Action objects to claims 3-8 because of informalities. Claims 3-8 are amended to correct the informalities. Accordingly, it is respectfully requested that the objection to the claims be withdrawn.

The Office Action rejects claims 3-7 and 9 under 35 U.S.C. §103(a) over Sugaya (U.S. Patent No. 5,754,299); and claim 8 under 35 U.S.C. §103(a) over Sugaya in view of Konno (U.S. Patent No. 6,081,385). The rejections are respectfully traversed.

In particular, Sugaya does not disclose, suggest or render obvious an optical positional deviation detecting apparatus wherein at least an image field stop position adjustment mechanism adjusts the field stop position on the basis of an asymmetric focus characteristic of the line and space mark pattern image obtained when forming the image of a line and space mark pattern within an image field area of an imaging device, as recited in independent claim 3, and similarly recited in independent claims 5 and 9.

Instead, Sugaya teaches an image forming optical system that includes a correction optical system for intentionally generating asymmetric aberration or symmetric aberration in the image forming optical system. Sugaya also discloses a decentering mechanism for decentering the correction optical system to cancel asymmetric aberration or symmetric aberration in the image forming optical system (Abstract). The Office Action asserts that

Sugaya (col. 6, lines 50-67; col. 7, lines 1-20; Fig. 19; col. 24-25; col. 26, lines 1-10) teaches that the imaging device position adjustment mechanism adjusts the position of the imaging device in accordance with the field stop positional adjustment effected by the field stop position adjustment mechanism. However, in col. 6, line 51 - col. 7, line 20, Sugaya discloses in Fig. 24 that the correction optical system 550 decentered by the decentering mechanism reduces asymmetric aberration in the whole image forming optical system. Sugaya also teaches, in col. 26, lines 3-4, and Fig. 19 that the illumination field stop 117 is driven by a driving system 118. Moreover, in cols. 26-28, Sugaya discloses that "the eccentric asymmetrical aberration in the whole image pickup surface can be canceled by the asymmetric aberration generated by shifting the afocal optical system, thereby making the image of the wafer mark approximate an ideally formed image."

Sugaya further discloses that in Figs. 3-6 that when there are telecentric deviations or aberrations, the relationship between the image position deviation and the variation in focus. Figs. 8-12 in Sugaya show a variation in β values of the whole mark obtained by line and space marks shown in Fig. 7, relative to variation in focus, when there are telecentric deviations or aberrations. These figures suggest that the position of the whole image at an image forming plane may not be deviated.

Accordingly, Sugaya fails to disclose establishing any relationship between the variation in position deviation illustrated in Figs. 3-6 or the variation in β values illustrated in Figs. 9-11 and the field stop position of the illumination optical system. Accordingly, Sugaya does not disclose or suggest that the image field stop position adjustment mechanism adjusts the field stop position on the basis of an asymmetric focus characteristic of the line and space mark pattern image obtained when forming the image of a line and space mark pattern within an image field area of the imaging device.

Moreover, Sugaya does not disclose or suggest any asymmetry with respect to the center of the view field. Instead, Sugaya discloses a method for calculating the β value (cols. 13 and 14) and the image forming position is deviated due to variation in focus in the case where there is telecentric index. Accordingly, Sugaya fails to disclose, suggest or render obvious an optical positional deviation detecting apparatus wherein an image field stop position adjustment mechanism adjust the field stop position on the basis of the asymmetric focus characteristic of the line and space mark pattern image obtained when forming the image of a line and space mark image is formed within an image field area of the imaging device, as recited in independent claim 5, and similarly recited in independent claim 9.

The Office Action asserts that Fig. 9 in Sugaya teaches that the focus characteristic passes through the center of the visual field because L5 in Fig. 9 is the ideal value for the asymmetrical index curve and a straight line symmetric with the z axis. However, the line L5 disclosed in Sugaya discloses a relationship between the β value obtained for the whole view field and the defocus amount.

The Office Action relies on Konno for the disclosure of the rotational asymmetric aberration. However, Konno instead teaches an optical system design method that determines a specific optical group having a relatively high decentering aberration error sensitivity to parallel decentering and tilt decentering (Abstract). Thus, Konno does not compensate for deficiencies in Sugaya.

Accordingly, any combination of Konno and Sugaya would not have resulted in a device wherein a field stop position is so adjusted that at least one set of areas which are symmetric with respect to the center of the image field is selected and an amount of rotationally asymmetric aberration for every selected area is symmetric, in a predetermined focal area in which a focused area is included, with respect to an axis which passes through

the center of said image field and which is perpendicular to a detecting direction of the positional deviation in alignment, as recited in independent claim 8.

Because neither Sugaya nor Konno disclose these features, any resulting device would not be able to provide an optical positional deviation detecting apparatus capable of searching and setting a common image field area optimal to any kind of measurement so as to eliminate an adjustment of the image field area for each element of the measurement mark. Thus, it would not have been obvious to combine Sugaya and Konno to render obvious the subject matter of independent claim 8, independent claims 3, 5 and 8-9, and their dependent claims. As such, it is respectfully requested that the rejections of the claims under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 3-10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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